



**Cedar Hills Regional Landfill Community Meeting Notes**  
**April 20, 2017**  
King County Library Service Center • 960 Newport Way NW, Issaquah

**In Attendance**

***King County Solid Waste Division staff***

- Scott Barden, Assistant Operations Manager
- Laura Belt, Engineer III
- Bill Berni, Operations Manager
- Neil Fujii, Managing Engineer
- Toraj Ghofrani, Engineer III
- Kathy Hashagen, Facilitator
- Matt Manguso, Communications Specialist
- Olivia Robinson, Intergovernmental Relations Liaison
- Polly Young, Program Manager

***Bio Energy Washington (BEW) staff***

- Kevin Singer, BEW Plant Manager

***Interested parties***

- Brian Fugere
- Kara Fugere
- Jacque Green
- Matt Hunkavic
- Leslie Morgan
- Bob Shaw
- Cecelia Soci

**Welcome and Introductions**

(Kathy Hashagen)

Kathy Hashagen began the meeting by welcoming those in attendance and reviewing the agenda. Hashagen introduced Solid Waste Division Engineer Laura Belt who introduced Solid Waste Division (SWD) staff in attendance. Belt explained the purpose and format of the meetings, as well as meeting elements:

- Division staff provide information about recent and planned activities at the landfill, and the BEW plant manager will do the same regarding their activities
- Meetings occur twice a year in the spring and the fall
- Notes will be provided on the division’s website that summarize issues discussed at these meetings; the notes are not intended to be verbatim transcripts
- Per King County Code Chapter 2, Section 2.21.060, there may be times when county employees are prohibited from discussing certain topics with people who are not county employees:
  - Incidents that could reasonably lead to claims or lawsuits against the county, or
  - Incidents that are the subject of pending claims or lawsuits

Belt also explained that if neighbors need to report a landfill concern they should call the Solid Waste Division at 206-477-4466. It is important to call this number because that is how the

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division logs and documents calls. That number, as well as contact information for Bio Energy Washington, is available at every meeting on the green handout. If neighbors feel the situation is an emergency, they should call 911. For neighbors who call the King County Roads Division directly, that number has changed to 206-477-8100.

## Construction and Environmental Monitoring Activities

(Laura Belt)

### Construction of New Stormwater Ponds

As was reported at the last meeting, waste from the South Solid Waste Area was removed to make room for the relocation of two stormwater ponds. Construction of the new ponds began in 2016 and is now complete. The new ponds replace older ponds that will be removed to develop a new landfill area.

### Installation of New Landfill Gas Pipeline

In 2016-17, the division installed a new landfill gas pipeline that transports gas from the North Flare Station to BioEnergy Washington's (BEW) plant. That pipeline has been operational since March 2017. This new pipeline will be the primary gas transmission pipeline. The old pipeline will be used as a backup pipeline so that gas can continue to be sent to BEW during planned maintenance. The new pipeline runs along the west side of the landfill and the old pipeline runs over the center of the landfill.

### Groundwater Quality

There are 61 groundwater wells throughout the landfill that monitor groundwater levels, water quality, and flow direction to ensure the division is in compliance with regulations and permits. The division checks water levels in all 61 groundwater wells quarterly, and checks the water quality in 38 of those wells.

SWD also monitors four offsite drinking water supply wells once a year. The most recent testing shows there are no significant changes in groundwater quality.

All reports related to groundwater monitoring, including quarterly reports, are available on the division's website:

[http://your.kingcounty.gov/solidwaste/facilities/documents.asp#cedar\\_reports](http://your.kingcounty.gov/solidwaste/facilities/documents.asp#cedar_reports).

*\*Note: At the time of the meeting the 2016 Annual Report had not yet been uploaded to the division's website, but it has since been uploaded and is available to the public.*

### “Overarching” Project (Environmental Control Systems Modification Project)

The division continues to evaluate the entire system of environmental controls at the landfill to ensure everything is working properly and to identify any improvements that need to be made. The environmental control systems are monitored independently, but this project is different in that it looks at the entire system as whole.

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## **Landfill Gas**

As a result of this overarching project the division has been changing out older, on/off, valves on wellheads and replacing them with precision valves that allow better control of airflow and help fine-tune gas collection. The new precision valves are working well and the division is looking at expanding precision valves to additional wells at the landfill.

## **Groundwater Data**

Since October 2015, the division has reported on water samples taken from a small and shallow “perched zone” that is not connected to drinking water or the regional aquifer. The perched zone is more like wet sand, not strictly water, which makes it difficult to collect useful data. There is contamination from past landfilling activities in the perched zone.

The division is required to monitor the perched zone and has developed a Remedial Investigation and Feasibility Study to evaluate the full extent of the contamination and what remediation options there are. Sampling of the perched zone was completed in August 2016, and in December the division submitted a draft “Remediation Investigation Feasibility Study” report to the Department of Ecology. Ecology has since commented on the report, and the division is working with Ecology to evaluate and fully understand their comments so there is a common understanding between the two agencies. A final report is expected by the end of the second quarter of 2017 and will be available to the public.

## **Landfill Site Development Plan**

The purpose of a Site Development Plan project is to look at ways of extending the life of the landfill by developing more disposal capacity. The last plan was issued in 2010 and from that plan the division selected the alternative that is now being developed as Area 8.

Current Interlocal Agreements with King County cities state the division must provide disposal service until 2040, so the Site Development Plan is looking at alternatives of how to achieve that at the landfill. SWD has identified five alternatives and is currently studying the environmental impacts of those alternatives. Particularly, the studies look at noise, aesthetics, air quality, and traffic impacts. At this time, the division is not proposing different options from the 2010 plan, which is located on the division’s website at <http://your.kingcounty.gov/solidwaste/facilities/cedar-hills-development.asp>.

## **Construction Updates on Area 7, Area 8, and Leachate Lagoons**

During 2017-18, the division will continue to work on these three integrated projects.

### **Area 7**

Area 7 is currently the main disposal area. As that area is filled with garbage, the division does staged closure of the side slopes to enable effective control of landfill gas and leachate, including

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effectively controlling erosion. The division recently completed Stage 2 of this project and will begin Stage 3 this summer. Since some portions of Area 7 will be higher than bordering areas, mostly due to garbage settling, the division will add side slope covers to those spots as well. Area 7 will continue to be filled until Area 8 opens.

## Area 8

Design work for Area 8 has been completed, and the division is preparing to begin filling that area once Area 7 is filled. Upcoming work for Area 8 will start with digging the hole and excavating two million cubic yards of soil, followed by laying a geomembrane liner and installing environmental controls for leachate and landfill gas collection. Construction work is scheduled to begin this summer and since so much soil will be excavated, most of the work this year will be excavation. The work to develop Area 8 will take about two years with expected completion at the end of 2018. An Invitation to Bid was issued inviting firms to bid on the two-year contract that includes work for staged closure of Area 7 and the construction of Area 8. Bids were due earlier this week, but the division has not reviewed those bids yet and does not have any information on who the contract will be awarded to.

## Leachate Lagoons

Last year, the division did a test to check the integrity of the liners of the leachate lagoons. The tests revealed four anomalies in the liners, one in the west lagoon and three in the east lagoon. After an inspection, it was discovered that the anomaly in the west lagoon was not a hole, but a divot, and a patch was placed over it. The three anomalies in the east lagoon were in the bottom of the liner and because of the amount of the sediment in the pond and the beginning of the stormy season, the division was unable to get to those anomalies. This summer the division will drain and inspect the east lagoon to address the other three anomalies.

## Operational Activities

(Scott Barden)

### Area 7 Lift Operations

About a year ago, the division began Lift 6 of Area 7. A “lift” refers to the layers of garbage laid in disposal areas. Each layer is a lift. In response to neighbor odor concerns, engineers and Operations staff came together to see if adjustments could be made that would help control odor. Lifts used to be 30-40 feet tall, and those were reduced to 15-20 feet. Typically it takes about two years to complete a lift, but for the current lift the division decided to shorten that time to 12-14 months. The direction the area is filled was also changed to an east-to-west direction. Gas collection lines were also narrowed from 180 feet to every 120 feet in an effort to collect gas sooner. It takes about two years for garbage to produce good gas, so gas collection can’t be turned on too early, because the division does not want to send too much oxygen to BEW. Since the gas collection system runs on a vacuum, drawing in too much oxygen has the potential to cause a fire. Scott thanked those in attendance for coming to the meetings and everyone in the community who reports concerns because that is how the division gets better. He also encouraged neighbors to keep calling with their concerns.

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## Soil from Factoria

The division is in the process of building a new Factoria Transfer Station in Bellevue. About 284,000 tons of soil were removed from the site to make room for the new station. That soil was transported to the landfill to be used as daily cover. This resulted in increased truck traffic on the road leading to the landfill. There is the chance for a few more loads coming to the landfill but for the most part that work is finished.

## Vegetation and Road Maintenance

In May, the division will begin annual weeding, mowing, other vegetation removal and some light road maintenance, including filling potholes, work at the landfill. The hope is to complete this work before the construction season begins.

## Dual Fuel Pilot

Last year, the division began conducting a test on using a truck that could run on both diesel and compressed natural gas (CNG). The truck became operational last June, but in October the truck experienced an engine failure and is now off the road. The division is still interested in pursuing new truck technology so it can continue to reduce its greenhouse gas emissions.

## Question and Answer

*The following is a summary intended to capture the general content of the questions asked and the answers provided; not a verbatim transcript.*

### ***What are the five alternatives for the Site Development Plan?***

- The five alternatives for the Site Development Plan include combinations of re-developing closed areas of the landfill that have decreased in height due to garbage settlement; using space currently occupied by administrative and operations support facilities; acquiring additional property within the landfill's footprint that will not infringe on the buffer; and a no action alternative.

### ***Is Area 7 larger than Areas 5 and 6? What is Area 7's size in relation to Areas 5 and 6?***

- Please refer to the [2010 Site Development Plan, Appendix B "Municipal Solid Waste Handling Permit](#), pages 4-8, for information regarding area volumes. ([http://your.kingcounty.gov/solidwaste/facilities/documents/Final\\_EIS\\_Appendix\\_B.pdf](http://your.kingcounty.gov/solidwaste/facilities/documents/Final_EIS_Appendix_B.pdf))

### ***Will Area 7 be open longer than Areas 5 and 6 were?***

- Yes, Area 7 is expected to be open until 2019, making its total period open about seven years. Area 5 was open for six years, and Area 6 was open for five years.

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## *How long were Areas 5 and 6 open?*

- Area 5 was open for six years, and Area 6 was open for five years.

## *When was Area 7 open and how long was Area 4 open for?*

- Area 7 began filling in June 2010 and Area 4 was open for eight years.

## *What is the size of Area 7 compared to Area 8? Will it be the same size?*

- Area 8 will be the same size as Area 7, but it will be configured differently.

## *Do you expect Area 8 to be open as long or longer than Area 7?*

- Area 8 will be deeper than Area 7, but the total volume will be similar. Area 8 is expected to open in 2019, and is projected to be open until 2025. It will be a different shape, and have a smaller area but a deeper hole.

## *When you excavate soil at the landfill where does it go?*

- It is relocated onsite.

## *Has the division looked at innovative ways of dealing with odor?*

- As Assistant Operations Manager Scott Barden mentioned at this and at the October 2016 community meeting, the Solid Waste Division has addressed neighbor odor concerns:
  - By lowering the lift height from 30 feet to 20 feet
  - Reduced the amount of time a lift occurs from 20 months to 12-15 months
  - Narrowed the placement of landfill gas collection systems from 180 to 120 feet.
  - Changed the disposal direction to east to west to allow the gas collection systems to be turned on sooner.
- The division has also looked at ways other landfills and solid waste managing agencies deal with odors.

## *If neighbors are concerned about odors in Area 7, could the division open Area 8 sooner than expected?*

- The division can bring this to the attention of management.

## *Is the old pipeline not being used?*

- The old pipeline is currently on a standby status to be used if needed. Throughout the landfill there are 649 wells that collect gas. There are a series of pipes that deliver the gas to the North Flare Station. The pipeline operates under a vacuum so gas is “pulled” to the North Flare Station. Once there, the gas can either go into the old pipeline, the new pipeline, or be flared. The control system is programed to direct the gas to the desired pipeline. The standard condition is to put the gas in the new pipeline and deliver it to BEW. If there were problems with the new pipeline, the old pipeline could be used to deliver gas to BEW.



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### ***How often are the North Flare Station flares tested?***

- As much as BEW tries, the plant is not always able to operate at 100 percent or 100 percent of the time, so there are times when the division must use the flares and the blowers run continuously. The division tests emissions from the flares to ensure they are destroying the gas. That test is performed every five years.

### ***What happens when gas gets to BEW?***

- It is turned from landfill gas into pipeline-quality gas through BEW's production process. The gas is then sold to Puget Sound Energy.

### ***Is there a belief that there will be sufficient increase of solid waste to accelerate the lift periods? Is there more garbage coming in that is causing the landfill to fill faster?***

- The most current lift began in 2016 and it is expected to be completed by August or September of this year. There is an average of 3,200 tons days. We do not receive as much garbage as we did when the City of Seattle was in the system and there was a dip in 2008 during the Great Recession, but yes, there has been an increase of garbage coming in.

### ***Can the lifts be shortened further?***

- Possibly, but the landfill is at about a 2-3 percent slope from the northeast to the northwest and we need to maintain a slope so the water can drain and we can stay on grade.

### ***As the lifts get higher does the division receive more complaints?***

- No, the division has not seen an increase in odor complaints as lifts get higher.

### ***Can the gas collection system be turned on sooner?***

- BEW does not want the division to send them oxygen and there is a regulatory limit on how much oxygen we can pull into the pipeline. If too much oxygen is pulled in it could also result in a fire.

### ***Do the pipes collect gas the whole time?***

- All the pipes collect gas except the ones at the very top.

### ***What does electrical resistivity show at the landfill?***

- That type of testing is not done in the landfill because a stray current can cause a landfill fire. That testing was only done for the leachate lagoons and stormwater ponds. For a pond with liquid in it, if you run a current through it you're looking to see if it will receive a connection point outside of the liner. It is a method for determining a leak in a liner.

### ***Was the CNG truck able to get up the hill?***

- Yes. The engine failure actually occurred on a flat stretch of Interstate 5.

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### ***What else can neighbors do to get information from the Puget Sound Clean Air Agency?***

- The division cannot speak for that agency, and you would need to contact them directly.

### ***When will the Area 8 Environmental Impact Statement be available to the public?***

- The Final Environmental Impact Statement (EIS) completed for the Cedar Hills Regional Landfill 2010 Site Development Plan identified alternatives for future development of the landfill. The development of Area 8 implements the preferred alternative identified in the Final EIS.

### ***Will future landfill areas be smaller?***

- With the exception of Area 8, future landfill areas have not been planned out yet.

*\*At this point in the meeting, a west side neighbor expressed her concern about the effects of increased odors on her family from Area 7 when garbage goes above ground level.*

### ***What systems are in place to monitor known airborne carcinogens? Are those systems placed in the communities or just in the landfill?***

- We monitor how much gas we collect compared to the model for the gas that we generate and we compare those to ensure we are collecting most of the gas. That tells us the bulk of the gas we are collecting is either being sent to BEW for processing or is flared. When gas is flared, we test the flares to make sure the gas is destroyed. We also measure the quality of the gas going in and out and test it. There is a list of things we monitor for when flaring the gas, including ammonia compounds, vinyl chloride, and other volatile organic compounds. We do not measure or monitor within communities.

### ***Have you looked into setting up testing equipment within the communities surrounding the landfill?***

- We have not, but will take that comment back to management.

### ***Can the Solid Waste Division provide money to set up testing equipment within the communities?***

- We can ask our management if that could be an option.

### ***What time of year do you test water quality at private wells?***

- We attempt to do that testing at the beginning of the year, but it depends on being able to reach people to access the wells. Sometimes we are unable to get to it until later in the year.

### ***If the Solid Waste Division can pay for noise monitoring they should pay for air quality monitoring***

- We can share that comment with management.



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## **Bio Energy Washington (BEW) Plant Update Plant Operations**

(Kevin Singer)

Kevin Singer explained BEW has three core values – health and safety, environmental compliance, and continuous improvement. There are at least two qualified plant technicians on-site at all times.

### **Health and Safety**

There was one injury in the past six months – a mechanic strained himself while trying to lift a piece of equipment off a shelf. BEW readjusted their storage so heavier items do not have to be lifted as high.

### **Environmental Compliance**

BEW recognizes that the Solid Waste Division has requirements they must adhere to when collecting and transporting gas to the plant. BEW has requirements of their own, and though BEW's mission is to get as much gas as possible and turn it into a renewable energy source, BEW recognizes what the division is doing to collect as much methane as possible.

Annual emissions testing of stack gases from the Engine House and Thermal Oxidizer was conducted in November and both systems met permit requirements. Testing will be done again this November.

### **Continuous Improvement**

In the past six months there was a 5 percent increase in the CO<sub>2</sub> removal system efficiency due to the replacement of valves on the pressure adsorber system.

A new second stage gas compressor was recently installed that is larger and more efficient than the original installation. Other than that, the plant is currently operating in a value period, and there are no major changes or construction projects coming up.

Minor improvement projects include some LED lighting and energy efficiency updates, as well as some Lean/Kaizen events on storage and internal business measures. There will also be some basic maintenance of equipment and routine changing out of gas separation media.

To further reduce particulate matter emissions, BEW is investigating low-ash engine oil for its generator house. Oil is used to lubricate the combustion engines that destroy a process waste stream, and using a low-ash oil could help reduce emissions even further.

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## Upcoming Projects

Upcoming projects include inspections, routine maintenance, cleaning parts, with no plans for major expansion or growth.

## Question and Answer

### ***Does BEW conduct noise monitoring and is there acoustic leakage?***

- The Engine House is fully enclosed and BEW has done extensive work to sound-insulate it. The engines run at low frequency harmonics. There is permanent sound monitor at the fence line and two portable sound monitors in the edge of the buffer zone on the east and west sides. BEW also does portable noise monitoring in seven different locations when the plant is running and not running to determine any noise issues. The plant has invested significant resources on sound attenuation and has not received any calls or complaints in the past two years regarding noise.

### ***Why did the valves need to be replaced?***

- The separation of methane from other gases is achieved by specialized media that utilizes changes in pressure to perform the separation. The pressure changes are accomplished by cycling valves in a specific sequence. The periodic valve cycling creates wear-and-tear on the valve and requires maintenance to ensure its integrity. We closely monitor plant conditions and efficiency to optimize when valve maintenance takes place. We were meeting permit requirements, but were seeing a decrease in plant efficiency and determined the valves as the root cause, so we performed the necessary maintenance. The new valves help extract more methane to be sent to the gas pipeline.

### ***What are the waste streams?***

- Waste streams include the gases separated from the methane, spent media, and some condensate from the landfill gas. Waste gases are destroyed in either the Thermal Oxidizer or combustion engines. The destruction rate of the thermal oxidizer is greater than 95 percent on volatile organic compounds (VOC). The system is set up to take care of a wide range of waste streams.

### ***Are there any other residuals or byproducts you sell besides gas?***

- No, we do not sell any other residuals or byproducts. We do as much recycling as possible, such as oil recycling, but our primary business is creating pipeline quality gas.

### ***Is there any chance of selling natural gas to the public?***

- It is difficult to say, but right now we are set up to deliver gas to the Williams Pipeline and Puget Sound Energy. BEW is not currently setup do sell natural gas to the public and would

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have to come develop alternatives in order to sell to the public. The markets can change, and we are open and flexible to provide a renewable product.